

## Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

March 13, 1990

H13-5.1  
90: 01441

G. W. Bodenstein, DOE/ORO  
G. E. Butterworth, K-1037, MS-7357, ORGDP  
C. W. Kimbrough, 9115, MS-8219, Y-12  
L. W. Long, K-1001, MS-7155, ORGDP

**Results of the Off-Site Residential Well Water Sampling Program**

Attached are the results of the sixteen residences sampled, including a letter to each home owner and reference tables. Also, the results of two USGS wells (RWA18 and RWA19) and two springs in the Freels Bend area (RWA20 and RWA21) which were also sampled are included.

Please give us any comments you may have by Friday, March 16; if we have not heard from you by that time, we will assume you have no comments.

*J. B. Murphy*

J. B. Murphy, 4500S, MS-6102, ORNL (6-7929)

JBM:es

Attachments

**APPROVAL FOR RELEASE**

Document: # Unnumbered; Date 3/13/90

Title/Subject RESULTS OF THE OFF-SITE RESIDENTIAL

WELL WATER SAMPLING PROGRAM

Approval for unrestricted release of this document is authorized by the Oak Ridge K-25 Site Classification and Information Control Office, Martin Marietta Energy Systems, Inc., PO Box 2003, Oak Ridge, TN 37831-7307.

*Arvin J. Trust* *12/29/92*  
K-25 Classification & Information Control Officer Date

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#434

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008

OAK RIDGE, TENNESSEE 37831

March 12, 1990

Ms. Joyce Poland  
Route 2, Box 61  
Poplar Creek Road  
Oliver Springs, Tennessee 37840

Dear Ms. Poland:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 14, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

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Water Quality Parameters

Conductivity, mS/cm	Temperature, degrees C
pH, standard units	

Inorganic Analytes

Arsenic	Barium
Beryllium	Cadmium
Calcium	Chloride
Chromium	Cobalt
Copper	Fluoride
Iron	Lead
Magnesium	Manganese
Mercury	Nickel
Nitrate	Nitrite
Selenium	Silver
Sodium	Sulfate
Uranium (Fluorometric)	Vanadium
Zinc	

Radionuclides

CO-60	CS-137
Gross Alpha	Gross Beta
TC-99	Total Strontium
Tritium	

Organic Analytes

1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane	1,1-Dichloroethane
1,1-Dichloroethene	1,2-Dichloroethane
1,2-Dichloroethene (total)	1,2-Dichloropropane
2-Butanone	2-Hexanone
4-Methyl-2-pentanone	Acetone
Benzene	Bromodichloromethane
Bromoform	Bromomethane
Carbon Disulfide	Carbon Tetrachloride
Chlorobenzene	Chloroethane
Chloroform	Chloromethane
Dibromochloromethane	Ethyl benzene
Methylene Chloride	Styrene
Tetrachloroethene	Toluene
Trichloroethene	Vinyl Acetate
Vinyl Chloride	Xylene (total)
cis-1,3-Dichloropropene	trans-1,3-Dichloropropene

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Table 2.  
WELL OWNER: RW-A-03

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.24	*	
Temperature, degrees C	19	*	
pH, standard units	7.5	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.13	1.0	P
Beryllium	0.0003	*	
Calcium	33	*	
Chloride	1.0	250	S
Iron	0.019	0.30	S
Magnesium	21	*	
Manganese	0.0073	0.050	S
Sodium	0.60	*	
Sulfate	2.0	250	S
Radionuclides      Units: Picocuries per Liter			
CS-137	0.81	*	
Gross Alpha	3.7	15	P
Gross Beta	7.5	*	
Total Strontium	2.5	8.0	P
Tritium	567	20000	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008

OAK RIDGE, TENNESSEE 37831

March 13, 1990

Mr. A. D. Dean  
Route 2, Box 431A  
Harriman, Tennessee 37748

Dear Mr. Dean:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 13, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by the EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

Except for fluoride which was present at 6 mg/L, none of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances, other than fluoride, measured in your well water do not pose an unacceptable health risk as a drinking water source. Federal regulations require that fluoride, which occurs naturally in water supplies, not exceed 4.0 mg/L in public drinking water. The EPA has determined that exposure to drinking water levels above 4.0 mg/L for many years may lead to health problems, including skeletal fluorosis. Additionally, some children exposed to levels of fluoride above 2.0 mg/L may develop dental fluorosis. Dental fluorosis is a brown staining and/or pitting of the permanent teeth. Fluoride at a level of approximately 1 mg/L is believed to be beneficial in reducing the number of dental cavities in children. In response to the question as to whether the elevated fluoride content is natural, the water quality data bases for the Oak Ridge National Laboratory (ORNL) and Y-12 were searched for wells with water having a fluoride content of 2.5 mg/L or greater. The search showed 16 wells at ORNL and 4 at Y-12 to have fluoride contents ranging between 2.5 and 15 mg/L. Your well and all these wells are in the Conasauga Group and are deep; depths range from 180 ft to 510 ft.

Your well and all of these wells have distinctive water-quality characteristics that set them apart from the water quality of more shallow wells. The pH is higher (8.0 or greater). High pH is required for the dissolution of any fluoride-bearing minerals present in the rock materials. In the case of the 16 ORNL wells for which analyses of sodium, sulfate, and calcium were available, sodium content is markedly greater (320 to 4400 mg/L), as is sulfate content (21 to 830 mg/L), and calcium content is markedly less (2.7 mg/L or less). Water from more shallow wells of the area in the Conasauga Group is typically of the calcium bicarbonate type; whereas, water quality associated with these wells containing high fluoride is of the sodium sulfate type.

Elevated fluoride content has not been found to occur in shallow wells of the area, showing that air deposition of fluorides is unlikely as a source. The distinctive characteristics of water quality associated with high fluoride content are interpreted to be produced by evolution and modification of water quality as the water flows through deeper zones and the residence time increases. Based on this evidence, it has been concluded that the high fluoride content of your well is natural.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

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Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

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Table 2.  
WELL OWNER: RW-A-10

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	1.5	*	
Temperature, degrees C	19	*	
pH, standard units	8.3	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.082	1.0	P
Calcium	2.7	*	
Chloride	4.0	250	S
Chromium	0.013	0.050	P
Copper	0.022	1.0	S
Fluoride	6.0 <sup>b</sup>	4.0	P
Iron	0.090	0.30	S
Magnesium	1.2	*	
Manganese	0.0031	0.050	S
Sodium	360	*	
Sulfate	44	250	S
Zinc	0.097	5.0	S
Radionuclides      Units: Picocuries per Liter			
TC-99	2.9	*	
Total Strontium	0.27	8.0	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

<sup>b</sup> This value is above the Drinking Water Standard for this analyte.



**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

March 12, 1990

Ms. Alice C. Wittmer  
2724 Joneva Road  
Knoxville, Tennessee 37932

Dear Ms. Wittmer:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on August 19, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

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Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

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Table 2.  
WELL OWNER: RW-A-02

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.24	*	
Temperature, degrees C	17	*	
pH, standard units	7.5	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.020	1.0	P
Cadmium	0.0048	0.010	P
Calcium	40	*	
Chloride	1.0	250	S
Iron	0.10	0.30	S
Magnesium	23	*	
Manganese	0.0031	0.050	S
Nitrate	1.0	10	P
Sodium	0.56	*	
Sulfate	11	250	S
Zinc	0.56	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	2.9	*	
CS-137	1.6	*	
Gross Alpha	5.4	15	P
Gross Beta	0.27	*	
TC-99	0.54	*	
Tritium	2054	20000	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008

OAK RIDGE, TENNESSEE 37831

March 13, 1990

Mr. R. B. Culton  
Route 3, Box 130  
Kingston, Tennessee 37763

Dear Mr. Culton:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 13, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

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Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

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Table 2.  
WELL OWNER: RW-A-07

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.20	*	
Temperature, degrees C	19	*	
pH, standard units	7.3	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.14	1.0	P
Calcium	53	*	
Chloride	4.0	250	S
Chromium	0.014	0.050	P
Copper	0.082	1.0	S
Iron	0.0063	0.30	S
Lead	0.039	0.050	P
Magnesium	4.1	*	
Manganese	0.0019	0.050	S
Nitrate	0.50	10	I
Sodium	4.9	*	
Sulfate	3.0	250	S
Zinc	0.031	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	2.4	*	
CS-137	0.27	*	
Gross Alpha	0.10	15	P
Gross Beta	17	*	
TC-99	0.37	*	
Total Strontium	0.35	8.0	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008

OAK RIDGE, TENNESSEE 37831

March 12, 1990

Ms. Fawnee Dinsmore  
Route 1, Buttermilk Road  
Lenoir City, Tennessee 37771

Dear Ms. Dinsmore:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 12, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

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Water Quality Parameters

Conductivity, mS/cm	Temperature, degrees C
pH, standard units	

Inorganic Analytes

Arsenic	Barium
Beryllium	Cadmium
Calcium	Chloride
Chromium	Cobalt
Copper	Fluoride
Iron	Lead
Magnesium	Manganese
Mercury	Nickel
Nitrate	Nitrite
Selenium	Silver
Sodium	Sulfate
Uranium (Fluorometric)	Vanadium
Zinc	

Radionuclides

CO-60	CS-137
Gross Alpha	Gross Beta
TC-99	Total Strontium
Tritium	

Organic Analytes

1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane	1,1-Dichloroethane
1,1-Dichloroethene	1,2-Dichloroethane
1,2-Dichloroethene (total)	1,2-Dichloropropane
2-Butanone	2-Hexanone
4-Methyl-2-pentanone	Acetone
Benzene	Bromodichloromethane
Bromoform	Bromomethane
Carbon Disulfide	Carbon Tetrachloride
Chlorobenzene	Chloroethane
Chloroform	Chloromethane
Dibromochloromethane	Ethyl benzene
Methylene Chloride	Styrene
Tetrachloroethene	Toluene
Trichloroethene	Vinyl Acetate
Vinyl Chloride	Xylene (total)
cis-1,3-Dichloropropene	trans-1,3-Dichloropropene

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Table 2.  
WELL OWNER: RW-A-11

Detected Analytes			
Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.28	*	
Temperature, degrees C	16	*	
pH, standard units	7.0	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.014	1.0	P
Calcium	51	*	
Chloride	3.0	250	S
Magnesium	27	*	
Nitrate	0.70	10	P
Sodium	2.0	*	
Sulfate	6.0	250	S
Uranium (Fluorometric)	0.0010	*	
Zinc	0.094	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	0.27	*	
CS-137	0.81	*	
Gross Alpha	0.97	15	P
TC-99	0.59	*	

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

March 12, 1990

Ms. Johnnie Kerns  
Route 3, Box 108  
Kingston, Tennessee 37763

Dear Ms. Kerns:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 13, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance, for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm	Temperature, degrees C
pH, standard units	

Inorganic Analytes

Arsenic	Barium
Beryllium	Cadmium
Calcium	Chloride
Chromium	Cobalt
Copper	Fluoride
Iron	Lead
Magnesium	Manganese
Mercury	Nickel
Nitrate	Nitrite
Selenium	Silver
Sodium	Sulfate
Uranium (Fluorometric)	Vanadium
Zinc	

Radionuclides

CO-60	CS-137
Gross Alpha	Gross Beta
TC-99	Total Strontium
Tritium	

Organic Analytes

1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane	1,1-Dichloroethane
1,1-Dichloroethene	1,2-Dichloroethane
1,2-Dichloroethene (total)	1,2-Dichloropropane
2-Butanone	2-Hexanone
4-Methyl-2-pentanone	Acetone
Benzene	Bromodichloromethane
Bromoform	Bromomethane
Carbon Disulfide	Carbon Tetrachloride
Chlorobenzene	Chloroethane
Chloroform	Chloromethane
Dibromochloromethane	Ethyl benzene
Methylene Chloride	Styrene
Tetrachloroethene	Toluene
Trichloroethene	Vinyl Acetate
Vinyl Chloride	Xylene (total)
cis-1,3-Dichloropropene	trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-12

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.18	*	
Temperature, degrees C	18	*	
pH, standard units	7.4	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.029	1.0	P
Calcium	32	*	
Chloride	3.0	250	S
Chromium	0.013	0.050	P
Iron	0.087	0.30	S
Magnesium	16	*	
Manganese	0.0033	0.050	S
Nitrate	0.90	10	P
Sodium	1.9	*	
Sulfate	6.0	250	S
Zinc	0.017	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	0.27	*	
CS-137	2.7	*	
Gross Alpha	1.5	15	P
Gross Beta	7.0	*	
TC-99	0.64	*	
Total Strontium	1.6	8.0	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

March 12, 1990

Ms. Fran Delozier  
Route 1, Box 298-B  
Jones Road  
Lenior City, Tennessee 37771

Dear Ms. Delozier:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 12, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance, for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm	Temperature, degrees C
pH, standard units	

Inorganic Analytes

Arsenic	Barium
Beryllium	Cadmium
Calcium	Chloride
Chromium	Cobalt
Copper	Fluoride
Iron	Lead
Magnesium	Manganese
Mercury	Nickel
Nitrate	Nitrite
Selenium	Silver
Sodium	Sulfate
Uranium (Fluorometric)	Vanadium
Zinc	

Radionuclides

CO-60	CS-137
Gross Alpha	Gross Beta
TC-99	Total Strontium
Tritium	

Organic Analytes

1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane	1,1-Dichloroethane
1,1-Dichloroethene	1,2-Dichloroethane
1,2-Dichloroethene (total)	1,2-Dichloropropane
2-Butanone	2-Hexanone
4-Methyl-2-pentanone	Acetone
Benzene	Bromodichloromethane
Bromoform	Bromomethane
Carbon Disulfide	Carbon Tetrachloride
Chlorobenzene	Chloroethane
Chloroform	Chloromethane
Dibromochloromethane	Ethyl benzene
Methylene Chloride	Styrene
Tetrachloroethene	Toluene
Trichloroethene	Vinyl Acetate
Vinyl Chloride	Xylene (total)
cis-1,3-Dichloropropene	trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-13

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.28	*	
Temperature, degrees C	18	*	
pH, standard units	7.1	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.088	1.0	P
Calcium	55	*	
Chloride	1.0	250	S
Fluoride	0.20	4.0	P
Iron	0.0081	0.30	S
Magnesium	23	*	
Nitrate	0.80	10	P
Sodium	0.85	*	
Sulfate	3.0	250	S
Zinc	0.015	5.0	S
Radionuclides      Units: Picocuries per Liter			
Gross Alpha	0.027	15	P
TC-99	1.1	*	

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008

OAK RIDGE, TENNESSEE 37831

March 12, 1990

Ms. Pat Parr  
Route 1, Box 298-C  
Lenior City, Tennessee 37771

Dear Ms. Parr:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 14, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy



Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-17

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.38	*	
Temperature, degrees C	15	*	
pH, standard units	6.9	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.11	1.0	P
Calcium	70	*	
Chloride	2.0	250	S
Copper	0.041	1.0	S
Fluoride	0.20	4.0	P
Iron	0.015	0.30	S
Magnesium	30	*	
Sodium	0.87	*	
Sulfate	10	250	S
Uranium (Fluorometric)	0.0010	*	
Zinc	0.024	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	2.7	*	
CS-137	1.8	*	
Gross Alpha	4.3	15	P
Gross Beta	7.8	*	
Total Strontium	2.0	8.0	P
Tritium	243	20000	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008

OAK RIDGE, TENNESSEE 37831

March 12, 1990

Mr. Tom Lally  
Route 3, Box 132C  
Kingston, Tennessee 37763

Dear Mr. Lally:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 13, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 and J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-15

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.60	*	
Temperature, degrees C	21	*	
pH, standard units	6.8	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.10	1.0	P
Beryllium	0.0004	*	
Calcium	91	*	
Chloride	10	250	S
Copper	0.062	1.0	S
Iron	0.013	0.30	S
Lead	0.0088	0.050	P
Magnesium	13	*	
Manganese	0.0029	0.050	S
Nitrate	0.40	10	P
Sodium	42	*	
Sulfate	26	250	S
Zinc	0.036	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	4.5	*	
CS-137	1.3	*	
Gross Alpha	0.24	15	P
Gross Beta	4.0	*	
TC-99	2.0	*	
Total Strontium	0.78	8.0	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

March 9, 1990

Mr. Elvan Delozier  
Route 1, Box 298-A  
Jones Road  
Lenoir City, Tennessee 37771

Dear Mr. Delozier:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 7, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-14

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.16	*	
Temperature, degrees C	18	*	
pH, standard units	7.6	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.11	1.0	P
Calcium	33	*	
Chloride	1.0	250	S
Fluoride	0.30	4.0	P
Lead	0.010	0.050	P
Magnesium	15	*	
Nitrate	0.60	10	P
Sodium	0.45	*	
Sulfate	3.0	250	S
Uranium (Fluorometric)	0.0010	*	
Zinc	0.53	5.0	S
Radionuclides      Units: Picocuries per Liter			
CS-137	2.4	*	
Gross Alpha	1.7	15	P
Gross Beta	5.4	*	
TC-99	1.5	*	
Total Strontium	0.24	8.0	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.



**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

March 12, 1990

Mr. Alfred Freels  
Route 5, Box 288  
Clinton, Tennessee 37716

Dear Mr. Freels:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 26, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-21

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.18	*	
Temperature, degrees C	17	*	
pH, standard units	7.2	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.13	1.0	P
Calcium	36	*	
Chloride	3.0	250	S
Copper	0.015	1.0	S
Iron	0.029	0.30	S
Magnesium	4.1	*	
Manganese	0.0022	0.050	S
Nitrate	0.70	10	P
Sodium	4.9	*	
Sulfate	7.0	250	S
Zinc	0.12	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	2.4	*	
Gross Alpha	0.75	15	P
Gross Beta	15	*	
TC-99	2.1	*	
Total Strontium	1.3	8.0	P
Tritium	540	20000	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008

OAK RIDGE, TENNESSEE 37831

March 9, 1990

Ms. Natalie Tarr Milleman  
Route 2, Box 423B  
Harriman, Tennessee 37748

Dear Ms. Milleman:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 7, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance, for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:RKO:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-09

Detected Analytes			
Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.24	*	
Temperature, degrees C	17	*	
pH, standard units	7.4	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.0021	1.0	P
Calcium	1.2	*	
Chloride	1.0	250	S
Copper	0.0041	1.0	S
Fluoride	0.10	4.0	P
Magnesium	0.50	*	
Sodium	77	*	
Sulfate	2.0	250	S
Zinc	0.013	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	4.0	*	
CS-137	3.2	*	
Gross Alpha	4.5	15	P
Gross Beta	9.7	*	
TC-99	1.2	*	
Total Strontium	0.75	8.0	P
Tritium	729	20000	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

March 13, 1990

Mr. Ed Tyl  
Route 3, Box 262-H  
Kingston, Tennessee 37763

Dear Mr. Tyl:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 7, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:RKO:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm	Temperature, degrees C
pH, standard units	

Inorganic Analytes

Arsenic	Barium
Beryllium	Cadmium
Calcium	Chloride
Chromium	Cobalt
Copper	Fluoride
Iron	Lead
Magnesium	Manganese
Mercury	Nickel
Nitrate	Nitrite
Selenium	Silver
Sodium	Sulfate
Uranium (Fluorometric)	Vanadium
Zinc	

Radionuclides

CO-60	CS-137
Gross Alpha	Gross Beta
TC-99	Total Strontium
Tritium	

Organic Analytes

1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane	1,1-Dichloroethane
1,1-Dichloroethene	1,2-Dichloroethane
1,2-Dichloroethene (total)	1,2-Dichloropropane
2-Butanone	2-Hexanone
4-Methyl-2-pentanone	Acetone
Benzene	Bromodichloromethane
Bromoform	Bromomethane
Carbon Disulfide	Carbon Tetrachloride
Chlorobenzene	Chloroethane
Chloroform	Chloromethane
Dibromochloromethane	Ethyl benzene
Methylene Chloride	Styrene
Tetrachloroethene	Toluene
Trichloroethene	Vinyl Acetate
Vinyl Chloride	Xylene (total)
cis-1,3-Dichloropropene	trans-1,3-Dichloropropene

---



**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

March 13, 1990

Mr. Ed Tyl  
Route 3, Box 262-H  
Kingston, Tennessee 37763

Dear Mr. Tyl:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 7, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:RKO:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-04

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.33	*	
Temperature, degrees C	16	*	
pH, standard units	7.7	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.060	1.0	P
Calcium	33	*	
Chloride	2.0	250	S
Copper	0.015	1.0	S
Fluoride	0.30	4.0	P
Iron	0.0057	0.30	S
Magnesium	21	*	
Manganese	0.0015	0.050	S
Nitrate	2.0	10	P
Sodium	0.89	*	
Sulfate	7.0	250	S
Zinc	0.029	5.0	S
Radionuclides      Units: Picocuries per Liter			
CS-137	2.7	*	
Gross Alpha	2.3	15	P
Gross Beta	5.4	*	
TC-99	2.9	*	

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

March 13, 1990

Mr. Danny Crass  
Route 3, Box 273C  
Kingston, Tennessee 37763

Dear Mr. Crass:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 7, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic	Barium
Beryllium	Cadmium
Calcium	Chloride
Chromium	Cobalt
Copper	Fluoride
Iron	Lead
Magnesium	Manganese
Mercury	Nickel
Nitrate	Nitrite
Selenium	Silver
Sodium	Sulfate
Uranium (Fluorometric)	Vanadium
Zinc	

Radionuclides

CO-60	CS-137
Gross Alpha	Gross Beta
TC-99	Total Strontium
Tritium	

Organic Analytes

1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane	1,1-Dichloroethane
1,1-Dichloroethene	1,2-Dichloroethane
1,2-Dichloroethene (total)	1,2-Dichloropropane
2-Butanone	2-Hexanone
4-Methyl-2-pentanone	Acetone
Benzene	Bromodichloromethane
Bromoform	Bromomethane
Carbon Disulfide	Carbon Tetrachloride
Chlorobenzene	Chloroethane
Chloroform	Chloromethane
Dibromochloromethane	Ethyl benzene
Methylene Chloride	Styrene
Tetrachloroethene	Toluene
Trichloroethene	Vinyl Acetate
Vinyl Chloride	Xylene (total)
cis-1,3-Dichloropropene	trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-06

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.49	*	
Temperature, degrees C	19	*	
pH, standard units	7.1	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.11	1.0	P
Calcium	90	*	
Chloride	2.0	250	S
Copper	0.010	1.0	S
Iron	0.042	0.30	S
Magnesium	15	*	
Manganese	0.0035	0.050	S
Sodium	4.8	*	
Sulfate	12	250	S
Zinc	0.11	5.0	S
Radionuclides      Units: Picocuries per Liter			
Gross Beta	3.7	*	
TC-99	2.2	*	
Total Strontium	0.81	8.0	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

March 13, 1990

Mr. Steve Lewis  
2939 West Gallaher Ferry Drive  
Knoxville, Tennessee 37932

Dear Mr. Lewis:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 7, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary or secondary drinking water standards, and no organic contamination was found. Based on available federal guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source.

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 and J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:RKO:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm	Temperature, degrees C
pH, standard units	

Inorganic Analytes

Arsenic	Barium
Beryllium	Cadmium
Calcium	Chloride
Chromium	Cobalt
Copper	Fluoride
Iron	Lead
Magnesium	Manganese
Mercury	Nickel
Nitrate	Nitrite
Selenium	Silver
Sodium	Sulfate
Uranium (Fluorometric)	Vanadium
Zinc	

Radionuclides

CO-60	CS-137
Gross Alpha	Gross Beta
TC-99	Total Strontium
Tritium	

Organic Analytes

1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane	1,1-Dichloroethane
1,1-Dichloroethene	1,2-Dichloroethane
1,2-Dichloroethene (total)	1,2-Dichloropropane
2-Butanone	2-Hexanone
4-Methyl-2-pentanone	Acetone
Benzene	Bromodichloromethane
Bromoform	Bromomethane
Carbon Disulfide	Carbon Tetrachloride
Chlorobenzene	Chloroethane
Chloroform	Chloromethane
Dibromochloromethane	Ethyl benzene
Methylene Chloride	Styrene
Tetrachloroethene	Toluene
Trichloroethene	Vinyl Acetate
Vinyl Chloride	Xylene (total)
cis-1,3-Dichloropropene	trans-1,3-Dichloropropene

---



Table 2.  
WELL OWNER: RW-A-01

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.28	*	
Temperature, degrees C	16	*	
pH, standard units	7.8	6.5-8.5	S
Inorganic Analyses Units: Milligrams per Liter			
Barium	0.0097	1.0	P
Calcium	29	*	
Chloride	1.0	250	S
Copper	0.014	1.0	S
Magnesium	17	*	
Manganese	0.0017	0.050	S
Sodium	0.57	*	
Sulfate	5.0	250	S
Zinc	0.025	5.0	S
Radionuclides Units: Picocuries per Liter			
Gross Alpha	1.7	15	P
Gross Beta	2.6	*	
TC-99	1.3	*	
Total Strontium	3.2	8.0	P

<sup>a</sup> \* = No Drinking Water Standard has been established for this compound.

S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.

P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).

Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

---

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008  
OAK RIDGE, TENNESSEE 37831

March 13, 1990

Mr. Robert Jago  
Route 3, Box 272  
Kingston, Tennessee 37763

Dear Mr. Jago:

**Analysis of Well or Drinking Water Supply**

Martin Marietta Energy Systems, Inc., personnel collected samples from your well water supply on September 7, 1989. Results from this initial sampling of your well are enclosed. The samples were analyzed for the substances listed in Table 1. Results for those substances present in the water from your well in detectable quantities are given in Table 2. Table 2 also lists the federal primary or secondary drinking water standard for each substance for which a standard exists. Primary drinking water standards are enforceable standards for public water supplies which have been established by the Environmental Protection Agency (EPA) to protect the public health. Secondary standards are nonenforceable standards established by the EPA primarily as guidelines for controlling aesthetic qualities (taste, smell, etc.) relating to the public acceptance of drinking water.

None of the substances detected in your well water exceeded the existing primary drinking water standards, and no organic contamination was found. Based on available federal primary drinking water guidelines, the levels of substances measured in your well water do not pose an unacceptable health risk as a drinking water source. Iron (3.3 mg/L) and manganese (0.096 mg/L) exceeded the secondary drinking water standards in your well. However, the levels found in your well water are not uncommon for the East Tennessee area. Your area is underlain by the Knox Dolomite formation, the presence of manganese is common in Knox Dolomite. Manganese has actually been mined from some of the East Tennessee Knox Dolomite formations. Both iron and manganese are essential elements for plant and animal life forms. However, both can lead to aesthetic water quality problems such as staining. The occurrence of black oxide staining is a common problem with water containing elevated levels of manganese.

Mr. Robert Jago

2

March 13, 1990

If you have questions about the results obtained for your well water, you should contact P. S. Rohwer at 574-6670 or J. B. Murphy at 576-7929.

Sincerely,

P. S. Rohwer, Head  
Environmental Monitoring  
and Compliance Section

PSR:JBM:dy

Enclosures

cc: L. W. Long  
J. B. Murphy

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm	Temperature, degrees C
pH, standard units	

Inorganic Analytes

Arsenic	Barium
Beryllium	Cadmium
Calcium	Chloride
Chromium	Cobalt
Copper	Fluoride
Iron	Lead
Magnesium	Manganese
Mercury	Nickel
Nitrate	Nitrite
Selenium	Silver
Sodium	Sulfate
Uranium (Fluorometric)	Vanadium
Zinc	

Radionuclides

CO-60	CS-137
Gross Alpha	Gross Beta
TC-99	Total Strontium
Tritium	

Organic Analytes

1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane	1,1-Dichloroethane
1,1-Dichloroethene	1,2-Dichloroethane
1,2-Dichloroethene (total)	1,2-Dichloropropane
2-Butanone	2-Hexanone
4-Methyl-2-pentanone	Acetone
Benzene	Bromodichloromethane
Bromoform	Bromomethane
Carbon Disulfide	Carbon Tetrachloride
Chlorobenzene	Chloroethane
Chloroform	Chloromethane
Dibromochloromethane	Ethyl benzene
Methylene Chloride	Styrene
Tetrachloroethene	Toluene
Trichloroethene	Vinyl Acetate
Vinyl Chloride	Xylene (total)
cis-1,3-Dichloropropene	trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-05

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.60	*	
Temperature, degrees C	18	*	
pH, standard units	7.6	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.078	1.0	P
Calcium	36	*	
Chloride	64	250	S
Fluoride	0.80	4.0	P
Iron	3.3 <sup>b</sup>	0.30	S
Magnesium	16	*	
Manganese	0.096 <sup>b</sup>	0.050	S
Sodium	100	*	
Sulfate	39	250	S
Zinc	0.10	5.0	S
Radionuclides      Units: Picocuries per Liter			
CS-137	1.0	*	
Gross Alpha	0.72	15	P
Gross Beta	3.5	*	
TC-99	0.43	*	
Total Strontium	2.9	8.0	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

<sup>b</sup> This value is above the Drinking Water Standard for this analyte.

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

05GS Wells  
Huels Bend  
Spring

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

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Table 2.  
WELL OWNER: RW-A-18

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.37	*	
Temperature, degrees C	16	*	
pH, standard units	6.6	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.50	1.0	P
Beryllium	0.0007	*	
Calcium	83	*	
Chloride	17	250	S
Chromium	0.046	0.050	P
Cobalt	0.029	*	
Copper	0.057	1.0	S
Fluoride	0.10	4.0	P
Iron	44 <sup>b</sup>	0.30	S
Lead	0.0086	0.050	P
Magnesium	31	*	
Manganese	2.2 <sup>b</sup>	0.050	S
Nickel	0.037	*	
Nitrate	1.0	10	P
Sodium	9.1	*	
Sulfate	16	250	S
Vanadium	0.033	*	
Zinc	0.29	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	1.6	*	
CS-137	0.27	*	
Gross Alpha	2.3	15	P
Gross Beta	37	*	

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

<sup>o</sup> This value is above the Drinking Water Standard for this analyte.

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

---



Table 2.  
WELL OWNER: RW-A-19

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.34	*	
Temperature, degrees C	15	*	
pH, standard units	6.5	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.15	1.0	P
Beryllium	0.0036	*	
Calcium	120	*	
Chloride	29	250	S
Chromium	0.028	0.050	P
Cobalt	0.037	*	
Copper	0.047	1.0	S
Iron	26 <sup>b</sup>	0.30	S
Lead	0.056 <sup>b</sup>	0.050	P
Magnesium	10	*	
Manganese	4.3 <sup>b</sup>	0.050	S
Nickel	0.047	*	
Nitrate	0.80	10	P
Sodium	13	*	
Sulfate	11	250	S
Vanadium	0.034	*	
Zinc	0.20	5.0	S
Radionuclides      Units: Picocuries per Liter			
CS-137	1.0	*	
Gross Alpha	4.3	15	P
Gross Beta	20	*	
Total Strontium	1.8	8.0	P

<sup>a</sup> \* = No Drinking Water Standard has been established for this compound.

S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.

P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).

Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

<sup>b</sup> This value is above the Drinking Water Standard for this analyte.

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-20

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.010	*	
Temperature, degrees C	15	*	
pH, standard units	6.7	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.11	1.0	P
Calcium	100	*	
Chloride	4.0	250	S
Fluoride	0.10	4.0	P
Iron	0.099	0.30	S
Lead	0.0080	0.050	P
Magnesium	6.9	*	
Manganese	0.11 <sup>b</sup>	0.050	S
Nitrate	0.20	10	P
Sodium	5.3	*	
Sulfate	5.0	250	S
Zinc	0.0067	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	1.0	*	
Gross Alpha	1.0	15	P
TC-99	0.81	*	
Total Strontium	0.81	8.0	P

- <sup>a</sup> \* = No Drinking Water Standard has been established for this compound.  
 S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.  
 P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).  
 Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

<sup>b</sup> This value is above the Drinking Water Standard for this analyte.

Table 1.  
List of Analytes

---

Water Quality Parameters

Conductivity, mS/cm  
pH, standard units

Temperature, degrees C

Inorganic Analytes

Arsenic  
Beryllium  
Calcium  
Chromium  
Copper  
Iron  
Magnesium  
Mercury  
Nitrate  
Selenium  
Sodium  
Uranium (Fluorometric)  
Zinc

Barium  
Cadmium  
Chloride  
Cobalt  
Fluoride  
Lead  
Manganese  
Nickel  
Nitrite  
Silver  
Sulfate  
Vanadium

Radionuclides

CO-60  
Gross Alpha  
TC-99  
Tritium

CS-137  
Gross Beta  
Total Strontium

Organic Analytes

1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1-Dichloroethene  
1,2-Dichloroethene (total)  
2-Butanone  
4-Methyl-2-pentanone  
Benzene  
Bromoform  
Carbon Disulfide  
Chlorobenzene  
Chloroform  
Dibromochloromethane  
Methylene Chloride  
Tetrachloroethene  
Trichloroethene  
Vinyl Chloride  
cis-1,3-Dichloropropene

1,1,2,2-Tetrachloroethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,2-Dichloropropane  
2-Hexanone  
Acetone  
Bromodichloromethane  
Bromomethane  
Carbon Tetrachloride  
Chloroethane  
Chloromethane  
Ethyl benzene  
Styrene  
Toluene  
Vinyl Acetate  
Xylene (total)  
trans-1,3-Dichloropropene

---

Table 2.  
WELL OWNER: RW-A-08

## Detected Analytes

Analysis	Value	Drinking Water Standard <sup>a</sup>	
Water Quality Parameters			
Conductivity, mS/cm	0.060	*	
Temperature, degrees C	17	*	
pH, standard units	6.0 <sup>b</sup>	6.5-8.5	S
Inorganic Analyses      Units: Milligrams per Liter			
Barium	0.074	1.0	P
Calcium	1.6	*	
Chloride	1.0	250	S
Iron	1.0 <sup>b</sup>	0.30	S
Magnesium	2.4	*	
Manganese	0.018	0.050	S
Nickel	0.011	*	
Sodium	1.5	*	
Sulfate	14	250	S
Zinc	0.019	5.0	S
Radionuclides      Units: Picocuries per Liter			
CO-60	2.7	*	
CS-137	2.9	*	
Gross Alpha	0.70	15	P
Gross Beta	2.2	*	
TC-99	1.4	*	
Total Strontium	4.5	8.0	P
Tritium	270	20000	P

<sup>a</sup> \* = No Drinking Water Standard has been established for this compound.

S = Secondary Drinking Water Standard. The Secondary Drinking Water Standards control contaminants in the drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.

P = Primary Drinking Water Standard. The Primary Drinking Water Standards are established pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Public Law 93-523).

Q = Proposed Primary Drinking Water Standard. These standards are proposed, but are not currently Primary Drinking Water Standards.

<sup>b</sup> This value is above the Drinking Water Standard for this analyte.